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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/697,789	10/26/2000	Graham Mensa-Wilmot	05516/084001	5600

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EXAMINER
GAY, JENNIFER HAWKINS

ART UNIT	PAPER NUMBER
3672	

DATE MAILED: 02/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/697,789	MENSA-WILMOT ET AL.	
	Examiner	Art Unit	
	Jennifer H Gay	3672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 December 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 December 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 5, 7, 8, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deane et al. (US 4,794,994) in view of Tibbitts et al. (US 6,006,846).

Regarding claims 5, 8, and 11: Deane et al. discloses a drill bit with the following features:

- A main body (12) with a plurality of blades (24A-E).
- A plurality of cutting elements (36A-G) mounted on the blades.
- The cutting elements including a substrate (40) and a diamond table (54). The substrate of each element is mounted in the blade so that a relief groove is formed under the diamond table. The groove extends back from the outer surface of the blade at least 40 percent of the portion of the thickness of the diamond table that does not extend past the outer surface of the blade.

Deane et al. discloses all of the limitations of the above claims except for the cutting elements being mounted on a mounting pad. As seen in the figures, Tibbitts et al. teaches a cutting element that is mounted on a mounting pad. The mounting pad includes a relief groove. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have mounted the cutting elements of Deane et al. on mounting pads as taught by Tibbitts et al. in order to have provided a way to easily attach and replace cutting elements.

Regarding claims 7 and 10, Deane et al. and Tibbitts et al. disclose all of the limitations of the above claims except for the relief groove having a depth of 0.025 inches. However, it

would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have formed the relief groove of Deane et al. in view of Tibbitts et al. with a depth of 0.025 inches, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

3. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deane et al. (US 4,794,994) in view of Tibbitts et al. (US 6,006,846) as applied to claims 5 and 8 above, and further in view of Butcher (6,220,117 B1).

Deane et al. and Tibbitts et al. disclose all of the limitations of the above claims except for forming the bit body from powered tungsten carbide infiltrated by a binder alloy. Butcher teaches a method of forming a drill bit. The drill bit is formed from a powered metal, tungsten carbide for example, that is infiltrated by a binder alloy. (See col. 3, line 25-col. 3, line 47). It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have formed the drill bit body of Deane et al. in view of Tibbitts et al. from powered tungsten carbide infiltrated by a binder alloy as taught by Butcher in order to have provided a drill bit that exhibited a relatively high strength compared to conventional drill bits (see col. 2, lines 43-47).

Response to Arguments

4. In view of the drawings filed 27 December 2002, the objection to the drawings has been withdrawn.

5. Applicant's arguments filed 27 December 2002 have been fully considered but they are not persuasive.

Contrary to applicant's argument that the only embodiment of the '994 patent where both the diamond table and the recess are disclosed, the recess is not formed under the diamond table, Figure 4 shows that the area that the examiner has referred to as the "relief groove" is under the diamond table. The examiner notes that Figure 4 is oriented differently from the applicant's

figures but when placed in the operative position, both figures would be oriented in the same direction. Therefore, the relief groove taught by the '994 patent is under the diamond table.

In response to applicant's argument that the relief groove of the '994 patent is no more than a required design parameter for the specific type of cutter element disclosed, the examiner acknowledges that this may be true. However, the purpose of the relief groove in '994 is irrelevant to its use as prior art as long as it meets the structural requirements of the claim.

In response to applicant's argument that the '846 patent does not teach a relief groove, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). The examiner recognizes that the '846 patent does not teach this feature but did not indicate that it did.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer H Gay whose telephone number is (703) 308-2881. The examiner can normally be reached on Monday-Friday, 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on (703) 308-2151. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and (703) 305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

JHG
February 10, 2003

DAVID BAGNELL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600